PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Sylvette Maisonnier *et al.*	Group Art Unit: Unknown
Serial No.: Unassigned	Examiner: Unknown
Filed: Concurrently Herewith	Atty. Dkt. No.: ESSR:052US
For: METHOD FOR PREPARING A LATEX WITH PHOTOCHROMIC PROPERTIES AND USES THEREOF, PARTICULARLY IN OPHTHALMOLOGY	

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PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicants respectfully submit this Preliminary Amendment in the above-referenced case. Consideration of this case in view of the amendments made herein is respectfully requested.

AMENDMENT

In the Specification:

Please amend the specification as follows:

At page 1, line 4, please insert the following paragraph:

--This application is a continuation of PCT Application No. PCT/FR00/00397 filed 17 February 2000, which claims priority to French Application No. 99 02437 filed 26 February 1999.--

Please insert the following Abstract at the end of the specification, immediately following the claims:

--ABSTRACT

This invention relates to a method for preparing a photochromic latex, photochromic thin films obtained therefrom, and articles coated with such thin films, in particular photochromic ophthalmic lenses.--

A substitute page 16 containing the Abstract is submitted herewith for inclusion with the specification.

In the Claims:

Please cancel claims 1-23, without prejudice or disclaimer.

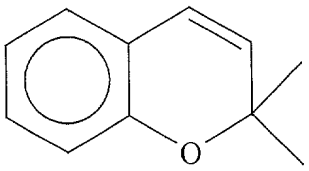
Please add new claims 24-54 as follows:

--24. (New) Method for preparing a latex with photochromic properties:

preparing an aqueous emulsion (I) of a composition A comprising:

at least one organic monomer Z, wherein said at least one monomer is further defined as comprising a C=C group and being capable of free-radical polymerization, and

one or more organic photochromic compounds containing a nucleus of formula:



; and

polymerizing composition A in the presence of a water-soluble initiator to obtain paricles of an at least partially polymerized latex with photochromic properties.

25. (New) The method of claim 24, wherein composition A comprises only one type of organic monomer Z.

26. (New) The method of claim 24, wherein composition a comprises more than one type of organic polymer Z.

27. (New) The method of claim 24, wherein the latex is a fully polymerized latex

28. (New) The method of claim 24, wherein the latex is a partially polymerized latex.

29. (New) The method of claim 28, further defined as comprising :

adding to the at least partially polymerized latex a second aqueous emulsion (II) containing a composition B comprising at least one organic monomer capable of free-radical polymerization; and

polymerizing composition to obtain a latex comprising at least biphasic photochromic particles.

30. (New) The method of claim 29, wherein the biphasic latex is further defined as comprising a core/skin structure.

31. (New) The method of claim 24, wherein the water-soluble initiator is introduced progressively to the aqueous emulsion I, during the polymerization.

32. (New) The method of claim 24, wherein the water-soluble initiator and the aqueous emulsion (I) are each introduced progressively into a reaction medium throughout polymerization.

33. (New) The method of claim 24, wherein the water-soluble initiator is an alkali or ammonium persulfate.

34. (New) The method of claim 33, wherein the water-soluble initiator is potassium or sodium persulfate.

35. (New) The method of claim 24, wherein the percentage by weight of the initiator with respect to total organic weight of monomer or monomers capable of free-radical polymerization used for the preparation of the latex is between 0.1 and 1%.

36. (New) The method of claim 24, wherein the organic monomer Z is an alkyl (meth)acrylate monomer.

37. (New) The method of claim 24, wherein composition A is further defined as comprising at least one monomer Z which is further defined as a low Tg monomer which leads to a homopolymer whose glass transition temperature is less than or equal to 0°C.

38. (New) The method of claim 37, wherein the low Tg monomer represents at least 40% by weight of the monomers capable of free-radical polymerization.

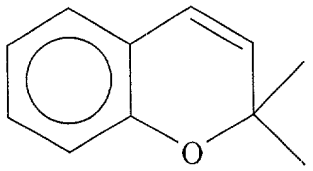
39. (New) The method of claim 24, wherein the particles of the latex are further defined as having a diameter of 50 to 400 nm.

40. (New) The method of claim 24, wherein a dry extract of the latex represents from 30 to 50% of the total weight of the latex.

41. (New) The method of claim 24, wherein the pH of the latex is between 5 and 7.

42. (New) A latex with photochromic properties, further defined as comprising particles of a polymer material resulting from the free-radical polymerization of at least one monomer Z with a

C=C group comprising one or more organic photochromic compound comprising a nucleus of formula:



,

the particles of said polymer material having an average size of between 50 and 400 nm.

43. (New) The latex of claim 42, wherein the particles are further defined as having an average size of between 80 and 300 nm.

44. (New) The latex of claim 43, wherein the particles are further defined as having an average size between 150 and 250 nm.

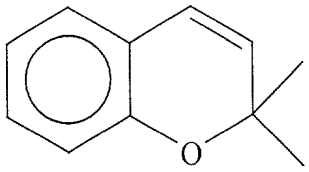
45. (New) The latex of claim 42, wherein the organic photochromic compound is further defined as not containing an indoline ring.

46. (New) The latex of claim 45, wherein the particles of polymer material have a biphasic structure, preferably of the core/skin type.

47. (New) The latex of claim 46, wherein the organic photochromic compound is contained in the core of the particles.

48. (New) The latex of claim 42, wherein a dry extract of the latex represents from 30 to 50% of the total weight of the latex.

49. (New) A substrate comprising a dry latex film with photochromic properties, the latex further defined as comprising particles of a polymer material resulting from the free-radical polymerization of at least one monomer Z with a C=C group comprising one or more organic photochromic compound comprising a nucleus of formula:



the particles of said polymer material having an average size of between 50 and 400 nm..

50. (New) The substrate of claim 49, wherein the film has a thickness of between 3 and 20 μm.

51. (New) The substrate of claim 49, further defined as comprising an anti-abrasion coating.

52. (New) The substrate of claim 49, further defined as comprising an anti-reflection coating.

53. (New) The substrate of claim 49, further defined as comprising an anti-abrasion coating on the latex film and an anti-reflection coating on the anti-reflection coating.

54. The substrate of claim 49, further defined as an ophthalmic lens.--

REMARKS

The specification has been amended to recite the priority data, to add an Abstract to the specification, to cancel claims 1-23 of the PCT application, and to add new claims 24-54. Support for the new claims is found in the specification as originally filed. The filing fee has been calculated after amendment of the claims by the preliminary amendment For the convenience of the Examiner, a clean set of the pending claims is attached hereto as Appendix A.

Should any additional fees under 37 C.F.R. §§ 1.16 to 1.21 be required, the Commissioner is hereby authorized to deduct said fees from Fulbright & Jaworski Deposit Account No. 50-1212/10107522/MBW.

Respectfully submitted,

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Attorney for Applicant

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Date: August 24, 2001

APPENDIX A

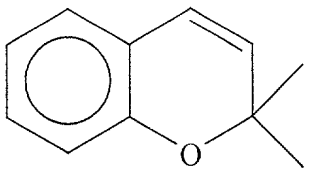
Pending Claims

24. Method for preparing a latex with photochromic properties:

preparing an aqueous emulsion (I) of a composition A comprising:

at least one organic monomer Z, wherein said at least one monomer is further defined as comprising a C=C group and being capable of free-radical polymerization, and

one or more organic photochromic compounds containing a nucleus of formula:



; and

polymerizing composition A in the presence of a water-soluble initiator to obtain paricles of an at least partially polymerized latex with photochromic properties.

25. The method of claim 24, wherein composition A comprises only one type of organic monomer Z.

26. The method of claim 24, wherein composition a comprises more than one type of organic polymer Z.

27. The method of claim 24, wherein the latex is a fully polymerized latex

28. The method of claim 24, wherein the latex is a partially polymerized latex.

29. The method of claim 28, further defined as comprising :

adding to the at least partially polymerized latex a second aqueous emulsion (II) containing a composition B comprising at least one organic monomer capable of free-radical polymerization; and

polymerizing composition to obtain a latex comprising at least biphasic photochromic particles.

30. The method of claim 29, wherein the biphasic latex is further defined as comprising a core/skin structure.

31. The method of claim 24, wherein the water-soluble initiator is introduced progressively to the aqueous emulsion I, during the polymerization.

32. The method of claim 24, wherein the water-soluble initiator and the aqueous emulsion (I) are each introduced progressively into a reaction medium throughout polymerization.

33. The method of claim 24, wherein the water-soluble initiator is an alkali or ammonium persulfate.

34. The method of claim 33, wherein the water-soluble initiator is potassium or sodium persulfate.

35. The method of claim 24, wherein the percentage by weight of the initiator with respect to total organic weight of monomer or monomers capable of free-radical polymerization used for the preparation of the latex is between 0.1 and 1%.

36. The method of claim 24, wherein the organic monomer Z is an alkyl (meth)acrylate monomer.

37. The method of claim 24, wherein composition A is further defined as comprising at least one monomer Z which is further defined as a low Tg monomer which leads to a homopolymer whose glass transition temperature is less than or equal to 0°C.

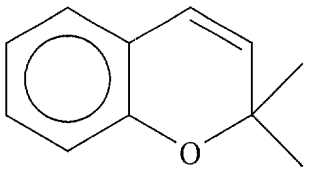
38. The method of claim 37, wherein the low Tg monomer represents at least 40% by weight of the monomers capable of free-radical polymerization.

39. The method of claim 24, wherein the particles of the latex are further defined as having a diameter of 50 to 400 nm.

40. The method of claim 24, wherein a dry extract of the latex represents from 30 to 50% of the total weight of the latex.

41. The method of claim 24, wherein the pH of the latex is between 5 and 7.

42. A latex with photochromic properties, further defined as comprising particles of a polymer material resulting from the free-radical polymerization of at least one monomer Z with a C=C group comprising one or more organic photochromic compound comprising a nucleus of formula:



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the particles of said polymer material having an average size of between 50 and 400 nm.

43. The latex of claim 42, wherein the particles are further defined as having an average size of between 80 and 300 nm.

44. The latex of claim 43, wherein the particles are further defined as having an average size between 150 and 250 nm.

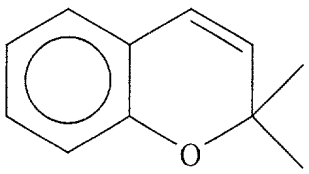
45. The latex of claim 42, wherein the organic photochromic compound is further defined as not containing an indoline ring.

46. The latex of claim 45, wherein the particles of polymer material have a biphasic structure, preferably of the core/skin type.

47. The latex of claim 46, wherein the organic photochromic compound is contained in the core of the particles.

48. The latex of claim 42, wherein a dry extract of the latex represents from 30 to 50% of the total weight of the latex.

49. A substrate comprising a dry latex film with photochromic properties, the latex further defined as comprising particles of a polymer material resulting from the free-radical polymerization of at least one monomer Z with a C=C group comprising one or more organic photochromic compound comprising a nucleus of formula:



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the particles of said polymer material having an average size of between 50 and 400 nm..

50. The substrate of claim 49, wherein the film has a thickness of between 3 and 20 μm.

51. The substrate of claim 49, further defined as comprising an anti-abrasion coating.

52. The substrate of claim 49, further defined as comprising an anti-reflection coating.

53. The substrate of claim 49, further defined as comprising an anti-abrasion coating on the latex film and an anti-reflection coating on the anti-reflection coating.

54. The substrate of claim 49, further defined as an ophthalmic lens.